

Section 3: Specific Requirements, Tool Descriptions, and Pointers to Sample Plans

This section outlines specific requirements and provides the basic tools to identify and manage safety issues. The use of a number of these tools is mandatory and the guide provides specific instructions for their use. Samples of various plans are provided electronically with the intent that they can be modified/tailored to meet your specific needs. Forms referenced can be found in **Section 6: Blank Forms**.

A. Supervisor's Checklist

A supervisor's checklist is provided to assist you in keeping track of specific requirements which are described in the balance of this Section.

B. Safety Surveys/Inspections

To maintain a safe environment as well as demonstrate your active involvement in resolving safety hazards, each Directorate needs to have a plan on how they will identify and correct safety concerns. Each organization should choose a method that best addresses their particular needs.

As a minimum, however, each Division and Branch Chief is expected to conduct at least one safety survey quarterly month. There are three survey forms provided for your use as needed: Office Safety, Laboratory Safety, and Shop Safety.

For those NASA employees with responsibility for construction projects (Project Managers and Construction Managers), safety surveys (inspections) of each of your construction projects should be made on a weekly basis.

These surveys shall be completed and kept on file for a minimum of 1 year in **Section 8: Safety Program Records**. A copy of the most recent survey will be posted in the workplace. Issues identified as a result of these safety surveys shall be addressed as soon as practical and definitely within 30 days unless impractical. Discrepancies which cannot be addressed within 30 days shall be entered into the Center's Nonconformance Reporting and Corrective Action System with the planned corrective action and dates for completion and follow-up.

C. Job Safety Analysis

Each supervisor is responsible for the completion of a Job Safety Analysis for all jobs which pose hazards in their areas of responsibility. JSAs are required for laboratory operations and all manufacturing and testing activities; particularly those of a routine or repetitive nature. The JSA should offer a critical evaluation of every facet of the job. JSAs should include inspection of machinery or equipment used, paying particular attention to developmental equipment or equipment used in the development of new processes or procedures, a review of job procedures to identify potential hazards, recommendations to reduce the risks of

hazards, and the development of new procedures as required to mitigate risks. A JSA can help to standardize procedures, improve efficiency, and identify what went wrong if an accident occurs.

More specific instructions for the JSA, a suggested Job Safety Analysis Form and a sample for rocket motor handling at Wallops are provided in **Section 6: Forms and Tools**.

D. Hazard Identification and Assessment

1. The following charts provide the details for standardized, effective hazard evaluation and how the various classes of hazards should be treated.

HAZARD SEVERITY CATEGORIES

CATEGORY	HAZARD CATEGORY	POTENTIAL CONSEQUENCES
I	CATASTROPHIC	Death, system loss, or severe environmental damage
II	CRITICAL	Severe injury, severe occupational illness, major system or environmental damage
III	MARGINAL	Minor injury, minor occupational illness, or minor system or environmental damage
IV	NEGLIGIBLE	Less than minor injury, occupational illness, or less than minor system or environmental damage.

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Figure 2-1 Hazard Severity Categories

HAZARD PROBABILITY CATEGORIES

LEVEL	FREQUENCY OF OCCURRENCE	DEFINITION
A	Frequent	Likely to occur frequently.
B	Probable	Will occur several times in the life of an item.
C	Occasional	Likely to occur some time in the life of an item.
D	Remote	Unlikely, but possible to occur in the life of an item.
E	Improbable	So unlikely, it can be assumed occurrence may not be experienced.

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Figure 2-2 Hazard Probability Categories

HAZARD RISK INDEX MATRIX

Frequency of Occurrence	Hazard Categories			
	I Catastrophic	II Critical	III Marginal	IV Negligible
(A) Frequent	1A	2A	3A	4A
(B) Probable	1B	2B	3B	4B
(C) Occasional	1C	2C	3C	4C
(D) Remote	1D	2D	3D	4D
(E) Improbable	1E	2E	3E	4E

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<u>Hazard Index</u>	<u>Risk</u>	<u>HRI</u>	<u>Suggested Criteria</u>
1A, 1B, 1C, 2A, 2B, 3A		1	Unacceptable
1D, 2C, 2D, 3B, 3C		2	Undesirable (Management Decision Required)
1E, 2E, 3D, 3E, 4A, 4B		3	Acceptable with review by Management
4C, 4D, 4E		4	Acceptable without review

Figure 2-3 Hazard Risk Index Matrix

2. Chemical Hazard Assessment – A checklist is provided to assist you in ensuring that all hazards associated with the storage, handling, and use of chemicals are understood and managed appropriately. The checklist can also be accessed on-line at <http://safety1st.gsfc.nasa.gov/supvguide.htm>
3. Radiation Hazard Assessment – This assessment tool is currently under construction.
4. Mixed Use Space/Adjacent Space Analysis – This tool has been developed to assist in identifying potential hazards associated with activities housed adjacent to one another which may have some inherent incompatibilities. This tool is available on-line at <http://safety1st.gsfc.nasa.gov/supvguide.htm>

5. Critical Equipment and Hardware Risk Management Tool – This tool is provided to help managers assess, document, communicate, and mitigate risks to Critical Equipment and Hardware. The tool involves a number of checklists for your use. It is available on-line at <http://safety1st.gsfc.nasa.gov/supvguide.htm>

E. Planning for Safety (Sample Plans)

1. Hazard Communication Plan – Office - The Center has a Hazard Communication Program to ensure hazards are effectively communicated to all employees. A sample Hazard Communications Plan applicable to employees in a typical office setting is provided on-line and can be accessed at <http://safety1st.gsfc.nasa.gov/supvguide.htm>
2. Hazard Communication Plan – Laboratory (See above)
3. Safety Plan - A typical Division level safety plan is provided for your use. It can be accessed on-line at <http://safety1st.gsfc.nasa.gov/supvguide.htm>
4. Emergency Evacuation Plan - The Building 11 Evacuation Plan is provided as a model for your use. This plan can be accessed on-line at <http://safety1st.gsfc.nasa.gov/supvguide.htm>